



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

the cornices of the buildings. It has been noted during every month of the year.

98. *Carpodacus purpureus purpureus*. Purple Finch.

This bird is more or less common during the autumn, winter, and spring, though of rather irregular occurrence. We have records from September 9 (1917) to May 20 (1917). Rather often heard singing in spring.

99. *Astragalinus tristis tristis*. American Goldfinch.

Occasionally observed, but only in April, May, September, and October.

100. *Loxia curvirostra minor*. American Crossbill.

One noted on January 14, 1917.

Insect Migration in Floyd and Adjoining Counties of Iowa.

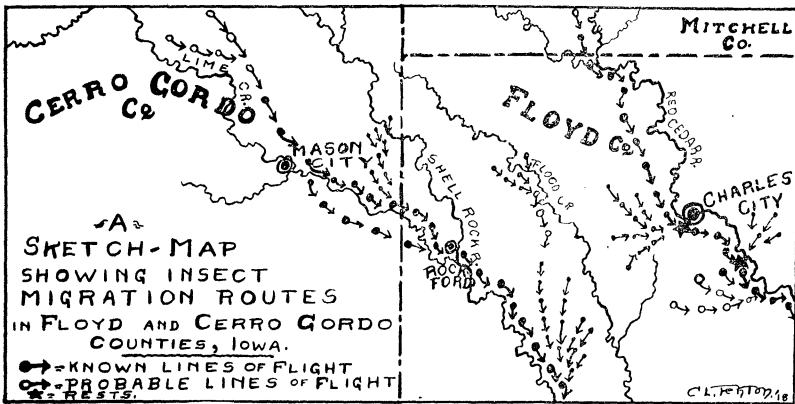
BY CARROLL LANE FENTON.

On September 17, 1915, I noted a flock of Monarch butterflies (*Anosia plexippus*) resting in an oak grove west of Charles City, Iowa. The flock contained many thousands of individuals, and practically covered the trees for a considerable area. From time to time small numbers of the insects arrived from the north, and occasionally fifty to one hundred would rise into the air and fly to the southeast. In general, though, there was no movement of the flock between the hours of one and five-thirty P. M. In order to form an estimate of the density with which the insects were crowded together I swept my net along a twig, and thirty-seven Monarchs made up the capture.

Two days afterward I again visited the same locality, and found considerable numbers of Monarchs flying about over a near-by creek or resting on some willows or the lower branches of the oaks. Above the trees were large numbers of these butterflies, steadily flying to the southeast. With the Monarchs were a number of Clover Sulphurs (*Colias philodice*), these latter being particularly in evidence about the water. While I failed to make detailed observations each day, this migration apparently lasted until about the twenty-third of September. At no other time did I observe such large numbers of butterflies as I had noted on the

first day, and after the twenty-third there was no noticeable evidence of migration, though Monarchs were not uncommon.

In 1916 I saw large numbers of Monarchs on September 5, but the true migration did not start until the eleventh, and two days later I found thousands of the butterflies at the oak grove, with constant flights to the southeast. I at once went to a little, sunny valley some three and one-half miles to the southeast and there I found conditions comparable to those at the oak grove on September 17 of the year before. The flock was almost entirely composed of Monarchs, and from a short distance many of the trees had the



appearance of being in autumn colors, the butterflies were so thickly gathered. On and by the road over which I went to the valley I had seen large flocks of *Colias philodice*, with considerable numbers of Monarchs, but I was unable to determine whether or not the former were in actual migration. On September 16, I saw a large flock of Monarchs and Clover Sulphurs flying east and south, and with it were numerous individuals of the European Cabbage Butterfly (*Pieris rapae*). I first saw this flock some two miles from the oak grove, and I was curious to know whether or not this flock, which was quite distinctly marked by the unusual presence of *P. rapae*, would rest at the grove. As I was walking, some forty minutes elapsed from the time when I first saw the butterflies and the time when I arrived at the desired locality. Here I found that there were numbers of *Anosia plexippus*, *Colias philodice* and also *Pieris rapae*, so in all probability the flock that I

had seen did stop at the grove. Apparently this is a regular and well recognized resting point with the migrating insects.

I traced this course of flight several miles northwest and also about seven miles to the southeast of Charles City. It is well defined and as shown, is used by large numbers of insects. It is, however merely a local element of a larger route that roughly passes across almost the full widths of Floyd and Cerro Gordo Counties.

In 1917 the Monarch migration began in the latter part of August, although the Sulphur migration did not commence until about the middle of September. On August 30, I observed a large and continuous flight of Monarchs at a point in the east-central portion of Cerro Gordo County. Here the butterflies skirted the lower portion of a seventy-foot bluff and at that point were flying almost due east but further investigation showed that as soon as this chain of hills disappeared the flight turned to the southeast. The next day I observed large numbers of Monarchs and Clover Sulphurs at a point about eight miles to the southeast of the point where I had noted the flight on the day before. It is notable that while this line of flight is some miles to the west of the one first described, it has the same general direction, both following the general trend of stream flow.

At Charles City there were large numbers of migrating Monarchs on September 5, but the migration reached its height from the twelfth to the fifteenth, and on these latter days a considerable percentage of *Colias* was found in the flocks studied. At no time was *Pieris rapae* noted in any of the flocks, though the species was fully as abundant as usual.

In none of the migrations have there been any indications that the same routes were used by birds or other insects, as for instance the dragonflies. Neither was any point noted where the path of migration became extremely narrow. In the spring, usually about the first of June, a few battered and weatherworn Monarchs appear, but there is no return of the Sulphurs. The Mourning Cloaks (*Vanessa antiopa*) often is found, in hibernated specimens, as early as April 1, and thus appears to be the earliest of the butterflies of that vicinity.

The accompanying sketch-map gives the two main routes of butterfly migration in Floyd and Cerro Gordo Counties, as indicated by these studies.